

Abstract

Proton-conducting polymer membrane comprising polyazoles containing phosphonic acid groups and its use in fuel cells

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The present invention relates to proton-conducting polymer membranes which comprise polyazoles containing phosphonic acid groups and are obtainable by a process comprising the steps

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A) mixing of one or more aromatic and/or heteroaromatic tetraamino compounds with one or more aromatic and/or heteroaromatic carboxylic acids or derivatives thereof which contain at least two acid groups per carboxylic acid monomer, with at least part of the tetraamino compounds and/or the carboxylic acids comprising at least one phosphonic acid group, or mixing of one or more aromatic and/or heteroaromatic diaminocarboxylic acids, of which at least part comprises phosphonic acid groups, in polyphosphoric acid to form a solution and/or dispersion,

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B) heating of the solution and/or dispersion obtainable according to step A) under inert gas at temperatures of up to 350°C to form polyazole polymers,

C) application of a layer using the mixture from step A) and/or B) to a support,

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D) treatment of the membrane formed in step C) until it is self-supporting.